

April 2013 on thirty knees of twenty-four patients suffering from medial compartment osteoarthritis associated with varus deformity. The patients were allocated randomly (single-blinded) in two groups; where fifteen knees of group (I) underwent high tibial osteotomy using the OWO technique, while those of group (II) underwent the procedure using the HCO technique.

Two important parameters were compared; the posterior tibial slope in lateral radiographs using the anatomical proximal tibial axis and the patellar height using the Blackburne-Peel method; to assess the accuracy of the procedure in the sagittal plane.

**Results:** OWO had proven lower accuracy than HCO as regard the change in tibial slope ( $P = 0.001$  and  $0.3$  respectively), while both techniques preserved patellar height almost unchanged with optimizing the procedures' techniques ( $P = 0.4$  and  $0.6$  respectively).

**Conclusion:** HCO technique for osteoarthritic knees associated with varus deformity can give more accurate results for the sagittal limb alignment and this may improve the long term results of the procedure and facilitate future TKR.

### 336

#### CLINICAL EFFICACY OF PLASMA RICH IN GROWTH FACTORS INTRA-ARTICULAR INFILTRATIONS IN THE TREATMENT OF KNEE OSTEOARTHRITIS: A SYSTEMATIC REVIEW

S. Padilla, J. Aguirre, R. Prado, G. Orive, E. Anitua. *BTI IMASD, Vitoria, Spain*

**Purpose:** Osteoarthritis (OA) is a multifactorial polygenic degenerative disease, mechanically induced, and whose progression might be attributable to pro-inflammatory signaling molecules (cytokines) overall leading to the synovial joint failure as organ, and where pain represents the clinical hallmark of disease. This study reviews the efficacy of the autologous biological therapy, Plasma rich in growth factor (PRGF) to regenerate tissue and reduce pain in patients with knee OA.

**Methods:** Using the interchangeable terms PRGF, or Plasma rich in growth factors, or autologous growth factors, or platelet rich plasma, and knee osteoarthritis, a comprehensive literature search was conducted using OVID, EMBASE, PASCAL, PubMed/MEDLINE electronic databases and the Cochrane Central Register of Controlled Trials on October 31, 2013. Studies were considered suitable if the participants were over 18 years and had been clinically diagnosed with OA of the knee according to the American College of Rheumatology. The studies had to include a PRGF group and a control group (Hyaluronic acid, placebo, or another PRP), and the design had to be a comparative retrospective study or randomized controlled trial (RCT). Pre- and post-treatment measures of joint pain, reduced function and stiffness were evaluated using WOMAC, KOOS, IKCD, LEQUESNE, or OMERAT OARSİ responders, with a follow-up of at least 4 weeks. Studies conducted using methods other than PRGF (such as double centrifugation, presence of leukocytes, platelet activation by bovine thrombin) to elaborate the product treatment group, were excluded. Outcomes were categorized by types and by pre- and post-treatment numbers, and median, or mean values (SD) were extracted. Dichotomic variables were expressed by determination of absolute and relative frequencies and the measure of effect was calculated by ascertaining the relative risk or odds ratio with their respective 95% confidence intervals. Quantitative variables were summarized by using the mean and standard deviation with intervals confidence at 95%. The quality assessment encompassed study methods, participants, experimental intervention, and control treatment. Overall, the risk of bias was categorized as low, unclear, or high risk based on random sequence generation, allocation concealment, blinding, incomplete outcome data, and selective reporting.

**Results:** The literature research yielded 91 citations, but only publications using eligible PRGF met the inclusion criteria, consisting of 3 RCTs, 1 prospective and 1 retrospective analysis ( $n = 5$ ). Two studies were rated as having a low risk of bias, and the remaining three studies as having high risk of bias. In two randomized clinical trials, it was observed that after six months of treatment the number of patients with a pain reduction of more than 50% was significantly higher in the group treated with PRGF than in the control group (HA). In two other studies (one retrospective and one prospective) the patients treated with PRGF showed a significant pain reduction compared with the patients treated with HA (WOMAC and VAS scale respectively). The

remaining variables (WOMAC scale for pain, function, and stiffness, LEQUESNE, KOOS, scale and OMERAT OARSİ responders) showed a statistically significant superiority of the group treated with PRGF in two RCT (Vaquerizo et al 2013, and Say et al 2013).

**Conclusions:** The current clinical evidence suggests that pain reduction of PRGF intra-articular infiltrations in patients with knee OA is significantly higher compared with HA, and lasting for a longer period of time (24 weeks after the last infiltration). Despite the high risk of bias of the other three studies, their results are consistent with those coming from the two RCT. There exist three key limitations in this review: the heterogeneity of the studies that met the inclusion criteria, the small number of publications included in the study, and the absence of a placebo in the control group.

### 337

#### LOW COST MINIMALIST SHOE AS A MECHANICAL TREATMENT FOR ALGO-FUNCTIONAL ASPECTS AND ANALGESIC MEDICINE INTAKE IN ELDERLY WOMEN WITH KNEE OSTEOARTHRITIS

F. Trombini-Souza, A. Matias, M. Yokota, C. Schainberg, R. Fuller, I.C. Sacco. *Univ. of Sao Paulo, Sao Paulo, Brazil*

**Purpose:** To evaluate the therapeutic effect of a low cost, flexible non-heeled shoe on the WOMAC domains and paracetamol intake of elderly women with knee OA.

**Methods:** A randomized, parallel and controlled clinical trial, with blind assessor was carried out. Fifty-six elderly women with knee OA graded 2 or 3 (Kellgren and Lawrence), assessed at baseline (T0), after three (T3) and after six months (T6), were randomly allocated into the intervention group (IG,  $n = 28$ ) or the control group (CG,  $n = 28$ ). We adopted the WOMAC pain as a primary outcome, and stiffness, function, and total WOMAC score, and paracetamol intake as the secondary outcomes. As intervention, the patients wore a minimalist, flexible and low-cost shoe (Moleca® shoe; Calçados Beira Rio S.A., Novo Hamburgo, RS, Brazil) for average daily usage time of 7 h 40 min. This intervention shoe is a women's double canvas flexible flat walking footwear without heels, and with a 5-mm anti-slip rubber sole. Paracetamol (500 milligrams), as a rescue medication, was allowed for both groups only in case of pain. The time effects (baseline, 3 and 6 months) of group (IG and CG) and interaction (time and group) were tested by two-way casewise ANOVA.

**Results:** The IG showed an improvement in pain (effect size between-group of 1.41), function (effect size of 1.22), and stiffness (effect size of 0.76) in WOMAC. The within-group results show that the IG improved the WOMAC pain by 51% ( $p = 0.001$ ) at T3 and 66% ( $p = 0.001$ ) at T6. The CG improved the WOMAC pain by 34% ( $p = 0.001$ ) at T3 and 28% ( $p = 0.001$ ) at T6. The IG improved the WOMAC stiffness by 55% ( $p = 0.001$ ) versus the CG that worsened 22% ( $p = 0.001$ ) at T3; at T6, the IG presented a reduction of 62% ( $p = 0.001$ ) for WOMAC stiffness while, in the CG, the reduction was only by 15% ( $p = 0.001$ ). The IG increased the WOMAC function by 52% ( $p = 0.001$ ) at T3 and 62% ( $p = 0.001$ ) at T6. In the CG, this variable was improved by 29% ( $p = 0.001$ ) at T3 and 19% ( $p = 0.001$ ) at T6. In the IG, WOMAC total score was improved by 53% ( $p = 0.001$ ) at T3 and 62.4% ( $p = 0.019$ ) at T6. In CG the improvement was of 26% ( $p = 0.001$ ) at T3 and 19% ( $p = 0.001$ ) at T6. The CG increased significantly the intake of rescue medication throughout the study, which possibly influenced their pain reduction and function improvement. The IG showed a slight increase in the paracetamol intake at the end of the 1st, 2nd and 3rd month; nevertheless, in the 4th, 5th and 6th month, the paracetamol intake was again similar to the initial assessment. From the 2nd to 6th month paracetamol intake was significantly higher in CG compared to IG.

**Conclusion:** We can recommend the use of this low cost minimalist shoe as another conservative mechanical treatment that aims to minimize pain, improve functional aspects, and reduce the rescue medication intake.

### 338

#### BMI, OBESITY AND EDUCATION

N.L. Brito, M.U. Rezende, M.I. Hissadomi, A.F. Pailo, T. Pasqualin, G.C. Campos, R. Frucchi. *Faculdade Med. USP, Sao Paulo, Brazil*

**Purpose:** To evaluate the effects of an educational program of patients with knee osteoarthritis (KOA) by means of BMI change.